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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,136	06/09/2005	Takeshi Kimura	05361/GH	1531

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EXAMINER	
SINCLAIR, DAVID M	

ART UNIT	PAPER NUMBER
2831	

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02/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,136	KIMURA ET AL.	
	Examiner	Art Unit	
	DAVID M. SINCLAIR	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/04/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/04/2008 have been fully considered but they are not persuasive.

Applicant argues that one of ordinary skill in the art would not have made the combination of MT_Shioya in view of Murata. Applicant argues that MT_Shioya discloses a heat-curing conductive paste applied to a terminal of a electronic device whereas Murata discloses a sintering type conductive paste used for forming hot-wire heater on the rear window of a car defogger. Firstly, Murata also discloses the conductive paste used as conductive circuits on a printed circuit board. Secondly, the examiner disagrees with applicant's assertion that one of ordinary skill in the art would not combine MT_Shioya in view of Murata as the references disclose different types of conductive paste. The examiner used Murata to disclose the limitation "the metal powder having a melting point of 300 °C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, of from of 5% to 17.6%" which deals with the conductive particles not how the pastes are "set". Furthermore, both references disclose a conductive paste comprising Ag and Sn as the conductive particles. Although, the references disclose different "types" of conductive paste one of ordinary skill in the art would recognize both references disclose conductive pastes comprising similar conductive particles usable with electronic devices and

it would therefore be obvious to use the weight ratio of conductive particles taught by Murata with the conductive paste of MT_Shioya.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over machine translation of JP10172346 hereafter referred to as MT_Shioya in view of JP54022596 hereafter referred to as Murata.

In regards to claim 1,

MT_Shioya discloses a multilayer ceramic electronic part having an external electrode (3 – see fig.1) formed from a thermosetting conductive paste ([0010] –

a thermosetting resin would make the conductive paste thermosetting) which is then cured ([0015]), said thermosetting conductive paste comprising conductive particles (4 – see fig. 1) having a high melting point ([0009]) of 400 °C or more, metal powder (5 – see fig. 1) having a melting point of 300 °C or less ([0013] – discloses indium or tin as the surface substance both elements have a melting point of less than 300 °C) and a thermosetting resin(s) (6 –fig. 1; [0010]). MT_Shioya fails to disclose the metal powder having a melting point of 300 °C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, of from of 5% to 17.6%.

Murata discloses a conductive paste used to form conductive layers on printed circuit boards wherein said conductive paste comprises conductive particles having a high melting point (Derwent – abstract; table 2 (page 4) - sample 3; Ag & Pd) and a metal powder composed of melting point of 300 °C or less (table 2 (page 4) - sample 3; Sn) wherein the weight percent of the metal powder having a melting point of 300 °C or less based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, is from of 5% to 17.6% (table 2 (page 4) – sample no. 3 – discloses 5 wt% Sn in the total compound [Sn is 8.92 wt% of all the conductive particles (conductive particles having a high melting point (Ag and Pd) and metal

powder having a melting point of 300 °C or less (Sn)]

$$\left(\frac{5(Sn)}{45(Ag)+6(Pd)+5(Sn)}\right)100 = 8.92\%).$$

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the weight percent of Sn as disclosed by Murata with the conductive paste of MT_Shioya to obtain an external electrode that is improved in solderability and antiweatherability.

In regards to claim 2,

The references as applied above disclose all the limitations of claim 2 except the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin. However, MT_Shioya further discloses the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin ([0014] – the conductive portion (conductive powder and conductive particles) is 100 weight parts and the resin is 30 weight parts therefore the

conductive portion compose 76.9% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin).

In regards to claim 4,

MT_Shioya discloses (1) providing a thermosetting conductive paste ([0010] – a thermosetting resin would make the conductive paste thermosetting) comprising conductive particles (4 – see fig. 1) having a high melting point of 400 °C or more ([0009]), metal powder (5 – see fig. 1) having a melting point of 300 °C or less ([0013] – discloses indium or tin as the surface substance both elements have a melting point of less than 300 °C) and a thermosetting resin (6 – fig. 1; [0010]), and a ceramic composite body which is to be provided with an external electrode ([0015]); (2) printing or applying said thermosetting conductive paste on or to a surface where an internal electrode of said ceramic composite body is led out ([0015]); and (3) maintaining said ceramic composite body obtained in the step (2) at a temperature of 80 °C to 400 °C for a period of one to sixty minutes so as to cure said thermosetting conductive paste and form the external electrode ([0015]). MT_Shioya fails to disclose the metal powder having a melting point of 300 °C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, of from of 5% to 17.6%.

Murata discloses a conductive paste used to form conductive layers on printed circuit boards wherein said conductive paste comprises conductive particles having a high melting point (Derwent – abstract; table 2 (page 4) - sample 3; Ag & Pd) and a metal powder composed of melting point of 300 °C or less (table 2 (page 4) - sample 3; Sn) wherein the weight percent of the metal powder having a melting point of 300 °C or less based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less, is from of 5% to 17.6% (table 2 (page 4) – sample no. 3 – discloses 5 wt% Sn in the total compound [Sn is 8.92 wt% of all the conductive particles (conductive particles having a high melting point (Ag and Pd) and metal powder having a melting point of 300 °C or less (Sn)]

$$\left(\frac{5(Sn)}{45(Ag)+6(Pd)+5(Sn)}\right)100 = 8.92\%).$$

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the weight percent of Sn as disclosed by Murata with the conductive paste of MT_Shioya to obtain an external electrode that is improved in solderability and antiweatherability.

In regards to claim 5,

The references as applied above disclose all the limitations of claim 5 except the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body.

However, the combination of MT_Shioya and Murata further disclose the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body (the diffused junction is caused by the method of manufacturing therefore the method taught by the combination of MT_Shioya and Murata which discloses the method of claim 4 would inherently create a diffused junction between the internal and external electrodes).

In regards to claim 6,

The references as applied above disclose all the limitations of claim 6 except the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part. However, MT_Shioya further discloses the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part ([0001]).

5. Claims 1, 2, & 4-6 rejected under 35 U.S.C. 103(a) as being unpatentable over JP10-279903 hereafter referred to as Seo in view of JP10-022170 hereafter referred to as Fujuda.

In regards to claim 1,

Seo discloses a thermosetting conductive paste useable in electronic parts, said thermosetting conductive paste comprising conductive particles having a high melting point of 400°C or more, metal powder having a melting point of 300 °C or less and a thermosetting resin(s), and wherein the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6% (claims; [0030-0033]) .

Fujuda discloses a multilayer ceramic electronic part having an external electrode formed from a conductive adhesive which is then cured (fig. 1; [0001], [0008-0010]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a multilayer ceramic electronic part as disclosed by Fujuda using the conductive adhesive of Seo as the external electrodes to obtain a multilayer ceramic electronic part wherein the external electrodes have sufficient adhesion, good conductivity, and are capable of being reworked.

In regards to claim 2,

The references as applied above disclose all the limitations of claim 2 except the total content of said conductive particles having a high melting point and said

metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin. However, Seo further discloses the total content of said conductive particles having a high melting point and said metal powder having a melting point of 300 °C or less in said thermosetting conductive paste is in the range of 70 to 95% by weight relative to the total weight of said conductive particles having a high melting point, said metal powder having a melting point of 300 °C or less, and said resin (abstract).

In regards to claim 4,

Seo discloses providing a thermosetting conductive paste useable in electronic parts, said thermosetting conductive paste comprising conductive particles having a high melting point of 400°C or more, metal powder having a melting point of 300 °C or less and a thermosetting resin(s), and wherein the metal powder having a melting point of 300°C or less is present in an amount by weight based on the total weight of said conductive particles having a high melting point and said metal powder having a melting point of 300°C or less, of from 5% to 17.6%; said conductive paste is cured at a temperature of 80 °C to 400 °C for a period of one to sixty minutes (claims; [0030-0033]).

Fujuda discloses a method of manufacturing a multilayer ceramic electronic part comprising the steps of providing a conductive adhesive, a ceramic composite body which is to be provided with an external electrode(s); printing or applying said conductive adhesive on or to a surface(s) where an internal electrode(s) of said ceramic composite body is led out; and curing said conductive paste to form said external electrode(s) (fig. 1; [0001], [0008-0010]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a multilayer ceramic electronic part as disclosed by Fujuda using the conductive adhesive of Seo as the external electrodes to obtain a multilayer ceramic electronic part wherein the external electrodes have sufficient adhesion, good conductivity, and are capable of being reworked.

In regards to claim 5,
The references as applied above disclose all the limitations of claim 5 except the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body. However, the combination of Seo and Fujuda further discloses the conductive particle in said external electrode makes a diffused junction with a metal of said internal electrode of said multilayer ceramic composite body (the diffused junction is caused by the method of manufacturing therefore the method taught by the combination of Seo and Fujuda which disclose the method of claim 4

would inherently create a diffused junction between the internal and external electrodes).

In regards to claim 6,

The references as applied above disclose all the limitations of claim 6 except the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part.

However, Fujuda discloses the multilayer ceramic electronic part is selected from the group consisting of a capacitor, a capacitor array, a thermistor, a varistor, an LC composite part, a CR composite part, an LR composite part, and an LCR composite part (fig. 1; [0001], [0008-0010]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a multilayer ceramic electronic part as disclosed by Fujuda using the conductive adhesive of Seo as the external electrodes to obtain a multilayer ceramic electronic part wherein the external electrodes have sufficient adhesion, good conductivity, and are capable of being reworked.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs. 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

/D. M. S./
Examiner, Art Unit 2831